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No. 273



TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

RECREATION LITERATURE ACCESS SYSTEM

Prepared by

Scott Forssell

Recreation Staff

Denver Service Center

Release No. 8

This Technical Note Release is the eighth on the Recreation Literature Access System series. It contains a selected bibliography on the topic of cultural resources.

Filing Instructions: This release should be combined in a loose leaf binder with previous releases by taking the following steps:

1. Remove and discard the previously issued pages 9-10 and 61-63.
2. Insert the attached pages in page number order (The unnumbered page listing Forest Service Experiment Stations should remain the last page in the binder).
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TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

RECREATION LITERATURE ACCESS SYSTEM

Prepared by

Scott Forssell

Recreation Staff

Denver Service Center

Release No. 7

This Technical Note Release is the seventh on the Recreation Literature Access System series. It contains a selected bibliography on the topic of cultural resources.

Filing Instructions: This release should be combined in a loose leaf binder with previous releases by taking the following steps:

1. Remove and discard the previously issued pages 9-10 and 61-63.
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Date Issued July 1976



TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

RECREATION LITERATURE ACCESS SYSTEM

Prepared by

Scott Forssell

Recreation Staff

Denver Service Center

Release No. 6

This Technical Note Release is the sixth on the Recreation Literature Access System series. It contains a selected bibliography of the topics of undesirable behavior and recreation psychology.

Filing Instructions: This release should be combined in a loose leaf binder with previous releases by taking the following steps:

1. Remove and discard the previously issued pages 9-10 and 51-53.
2. Insert the attached pages in page number order (The unnumbered page listing Forest Service Experiment Stations should remain the last page in the binder).
3. File this sheet in the front of the binder as a record of having received this release.



Date Issued May 1976



TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

RECREATION LITERATURE ACCESS SYSTEM

Prepared by

Scott Forssell

Recreation Staff

Denver Service Center

Release No. 5

This Technical Note Release is the fifth on the Recreation Literature Access System series. It contains a selected bibliography of the topics of resource inventories and off-road vehicles.

Filing Instructions: This release should be combined in a loose leaf binder with previous releases by taking the following steps:

1. Remove and discard the previously issued pages 9-10 and 43-45.
2. Insert the attached pages in page number order (The unnumbered page listing Forest Service Experiment Stations should remain the last page in the binder).
3. File this sheet in the front of the binder as a record of having received this release.

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THE MOUNTAIN



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THE MOUNTAIN

The mountain is a great and noble thing, a thing of power and beauty, a thing that has stood for centuries and will stand for centuries more. It is a thing that has inspired men and women of all ages and all nations, a thing that has given birth to legends and myths and stories that have been passed down from generation to generation.

The mountain is a thing of mystery and wonder, a thing that has always fascinated the human mind. It is a thing that has always been a source of awe and inspiration, a thing that has always been a part of the human imagination.

The mountain is a thing of beauty and grace, a thing that has always been a source of joy and delight. It is a thing that has always been a part of the human heart, a thing that has always been a part of the human soul.

The mountain is a thing of strength and courage, a thing that has always been a source of inspiration and motivation. It is a thing that has always been a part of the human spirit, a thing that has always been a part of the human will.

The mountain is a thing of peace and harmony, a thing that has always been a source of comfort and solace. It is a thing that has always been a part of the human mind, a thing that has always been a part of the human heart.

BIBLIOGRAPHY SECTION

CONTENTS

Release Nos. 1-5

<u>Topic*</u>	<u>Citation</u>	<u>Page Numbers</u>
Carrying Capacity Concept	1 - 5	11 - 13
Wilderness/Primitive Areas	6 - 14	14 - 18
River Management	15 - 19	19 - 21
Visitor Use Analysis	20 - 27	22 - 25
Visual Resource Management	28 - 40	26 - 31
Interpretation	41 - 47	32 - 35
Research Natural Areas	48 - 53	36 - 39
Recreation Planning Concepts	54 - 61	40 - 43
Resource Inventory	62 - 66	44 - 47
Off-Road Vehicles	67 - 73	48 - 51
<u>Index Section</u>		52 - 53

*NOTE: Topics are arranged in the order of bibliography completion.



TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

RECREATION LITERATURE ACCESS SYSTEM

Prepared by

Robert Barry

Recreation Staff

Denver Service Center

Release No. 4

This Technical Note Release is the fourth of the Recreation Literature Access System series. It contains a selected bibliography of the topics of interpretation, research natural areas, and recreation planning concepts.

Filing Instructions: This release should be combined in a loose leaf binder with previous releases by taking the following steps:

1. Remove and discard the previously issued pages 9-10 and 31-34.
2. Insert the attached pages in page number order (The unnumbered page listing Forest Service Experiment Stations should remain the last page in the binder).
3. File this sheet in the front of the binder as a record of having received this release.



Date Issued December 1975



TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

RECREATION LITERATURE ACCESS SYSTEM

Prepared by

Robert Barry

Recreation Staff

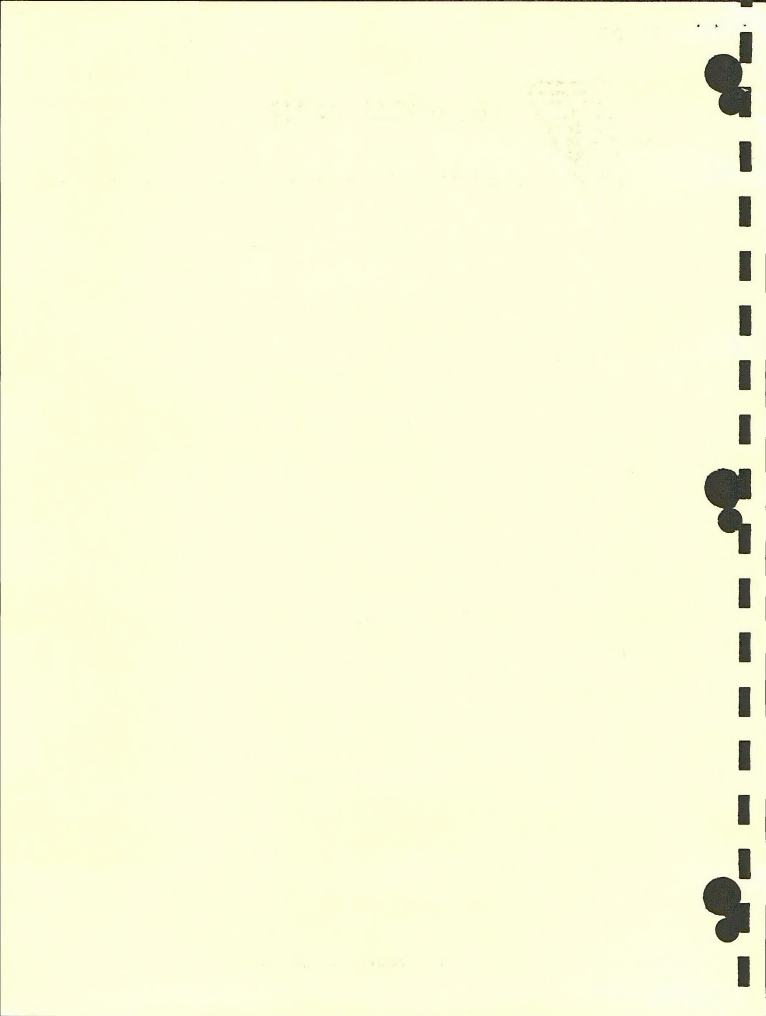
Denver Service Center

Release No. 3

This Technical Note Release is the third of the Recreation Literature Access System series. It contains a selected bibliography of the topic of visual resource management.

Filing Instructions: This release should be combined in a loose leaf binder with previous releases by taking the following steps:

1. Remove and discard the previously issued pages 9-10 and 25-28.
2. Insert the attached pages in page number order (The unnumbered page listing Forest Service Experiment Stations should remain the last page in the binder).
3. File this sheet in the front of the binder as a record of having received this release.



Date Issued September 1975



TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

RECREATION LITERATURE ACCESS SYSTEM

Prepared by

Robert Barry

Recreation Staff

Denver Service Center

Release No. 2

(Correction)

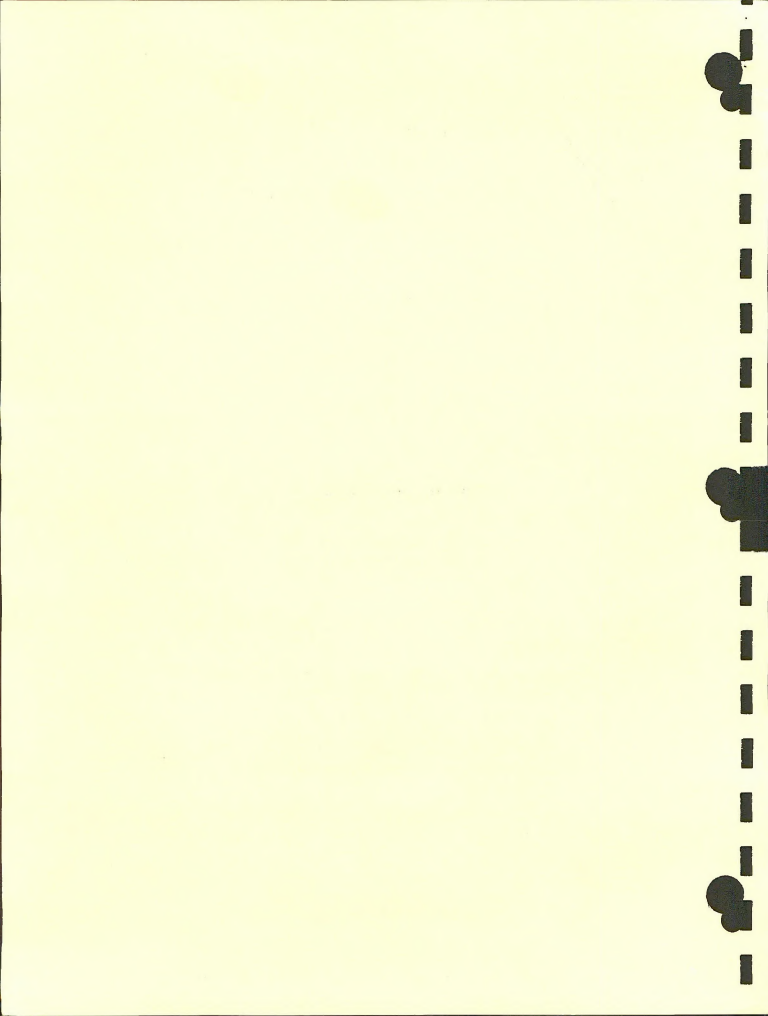
NOTE:

The previously issued Release No. 2 Dated September, 1975, Filing Code 6005 was incomplete. If that release has not been combined with Release No. 1, the incomplete Release No. 2 should be discarded and this release substituted by taking the following steps:

1. Remove and discard the previously issued Contents page and Index Section pages. (Pages 9-10 and 19-21 from Release No. 1.).
2. Insert the attached Contents page, bibliographies, and Index Section pages (Page number order should be maintained).
3. File this sheet in the front of the binder as a record of having received this release.

If the incomplete release has been combined with Release No. 1, take the following steps:

1. Insert pages 21-28 and the unnumbered page of USFS Experiment Station addresses from this release maintaining page number order.
2. File this sheet in the front of the binder as a record of having received this release.
3. Discard the remainder of this corrected release (pages 9-10 and 19-20).



Date Issued August 1975



TECHNICAL NOTE

U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

RECREATION LITERATURE ACCESS SYSTEM

Prepared by

Robert Barry

Recreation Staff

Denver Service Center

Release No. 1

This Technical Note Release is the first of a series. It introduces a Recreation Literature Access System for the Bureau and contains bibliographies of two topics - recreation carrying capacity, and wilderness recreation management. Subsequent releases will contain bibliographies of additional topics. Future releases should be combined with this one in a loose leaf binder as they are received.

RECREATION LITERATURE ACCESS SYSTEM OVERVIEW

Objective

The Recreation Literature Access System is intended to make outdoor recreation information and professional literature more readily available to Bureau of Land Management recreation planners and managers.

General Concept

In theory, the professional in any field works to keep himself abreast of current developments in his speciality and utilizes his knowledge of these developments in his work. In practice, this aspect of professionalism often suffers from neglect, or the magnitude of the task simply exceeds the time that the individual can devote to it. The problem is particularly acute in the field of outdoor recreation, because recreation related literature is dispersed throughout a wide range and variety of publications. This situation is compounded by the lack of a comprehensive indexing or bibliographic reference for the field. Recreation specialists in the Bureau of Land Management have the additional problems that, 1) much of the recreation literature does not apply to the Bureau situation, and 2) Bureau jobs frequently locate the specialist where he cannot readily obtain current materials.

Training courses help the recreation specialist keep current in his speciality, but they are only a partial solution. Often the specialist needs to obtain on short notice ideas or information for dealing with a specific situation, and unless relevant material is readily available, he "muddles through" as best he can on his own. The need is for a mechanism which will make current material relating to specific problems readily available to the recreation specialist.

The Recreation Literature Access System is intended to meet this need by dealing with three aspects of the problem. It seeks to 1) identify that portion of the mass of recreation literature which is relevant to Bureau needs, 2) inform the Bureau recreation specialist of the existence of this material, and 3) help the specialist obtain the portion of this material that he can put to use.

System Development

The initial development of a literature access system capable of reducing the three identified aspects of the problem is expected to require at least a year of effort. For this reason, a system design and development process which allows completed portions of the system to be utilized while other portions are still under development has been adopted and is being undertaken as follows:

1. With the assistance of input received from a sample of Bureau recreation planners, the DSC Recreation Staff has developed a working list of recreation topics of concern to the Bureau. (A preliminary topic list, which will be revised and refined as system development progresses, is attached).

2. Field input was also utilized to help determine which of the listed topics were of greatest interest or importance. Beginning with these topics, the DSC Recreation Staff is conducting intensive literature searches to identify current material available on each topic.

3. As each topic is searched, a selected bibliography is prepared. A few, key entries in each bibliography are annotated and assigned a citation number. Periodically, the DSC Recreation Staff publishes these bibliographies in Technical Note form. In addition to containing the most recently prepared bibliographies, each Technical Note release includes a comprehensive index section.

4. The DSC Recreation Staff is obtaining reprints of those materials which are annotated and assigned citation numbers. When these materials are not readily available from primary sources or when they are needed on short notice by Bureau personnel, they will be distributed from the DSC in response to telephone or mailed request

5. Once literature searches have been conducted and bibliographies compiled for all topics, a single, cumulative Technical Note will be published combining all topic areas under one cover. This cumulated publication will be revised on an annual (or possibly a semi-annual) basis to reflect additions to the available literature and new developments in the Bureau Recreation program.

System Organization

The Recreation Literature Access System listings are divided into two major parts, a Bibliography Section which contains citations organized by topic area and, an Index Section which cross-references Bibliography Section listings. Each topic area in the Bibliography Section contain two types of entries. A few key items in each topic are assigned citation numbers and a brief annotation indicates the content of the item. Other items (which are less current, less relevant to the Bureau, or less readily available) are simply listed in a selected bibliography of the topic. The entries for annotated items also list the index terms under which the entry is cross-referenced in the Index Section, and note where the publication may be obtained. If the item has been assigned a subject-function code shelf location number by the DSC Library, that number is also listed.

The Index Section alphabetically cross-references materials assigned citation numbers in the Bibliography Section. This section makes it possible to identify all materials that touch on a particular subject even though they focus on another topic. For example, an article on wilderness management may also discuss recreation carrying capacity and visitor use analysis. It would be included in the "wilderness/primitive area" topic in the Bibliographic Section and listed under "wilderness, carrying capacity, and visitor use analysis" index terms in the Index Section. Citation numbers are used in the Index Section to identify the materials that apply to each index term.

RECREATION LITERATURE ACCESS SYSTEM

PRELIMINARY TOPIC LIST

GENERAL

Recreation Planning Concepts
Market Analysis
Resource Inventory
Carrying Capacity Concept
Visitor Use Analysis
Recreation Psychology
 Perception
 Motivation
 Behavior
Recreationist Characteristics

RESOURCE MANAGEMENT

Natural Values
 Natural Areas
 Wilderness/Primitive Areas
 River Management
 Cave Management
 Scenic Corridors and Areas
 Visual Resource Management
 Wildlife-based Recreation
Cultural Values
 Historical
 Archeological
 Other
Activity Values
 Water-based Activities
 Winter Sports
 Collecting
 Off-Road Vehicles
 Trails
 Camping and Picnicking
 Dispersed Use
Management Operations
 Site and Facility Design
 Operations and Maintenance
 Recreation Access

VISITOR MANAGEMENT

Visitor Services
 Information
 Interpretation
 Education
Visitor Safety and Control
 Undesirable Behavior
 Law Enforcement
 Health, Sanitation, and Safety
Visitor Use Regulation
 Registration Systems
 Reservation Systems
 Use Permits
 Entrance and User Fees
Special Events Management
Concessions and Commercial Services

USING THE RECREATION LITERATURE ACCESS SYSTEM

Maintaining the System

During the development period, offices or individuals using the system will need to combine each new release with those received previously. Normally, this will only involve inserting new topic bibliographies in the Bibliography Section and substituting a new Contents sheet and Index Section for those previously received. This process can be facilitated by maintaining system releases in a loose leaf binder.

Locating Useful Materials

The user can identify materials of interest employing either of two approaches. If his interest parallels one or more of the topic areas available in the Bibliography Section, he can turn to that topic area and review the materials listed there. This procedure will identify materials which deal with the referenced topic areas as their primary focus. If the user desires to identify other materials that deal with his interest as a secondary or peripheral subject, he can locate these by examining citations included under related index terms in the Index Section. Appropriate index terms to examine can often be identified by reviewing those listed for materials of interest which have already been located in the Bibliography Section.

A second approach to finding materials is to begin by checking the Index Section for terms that appear to relate to the subject of interest. This approach may be the best course of action when the user's interests do not directly relate to one of the System topic areas, or when the Bibliography Section topic area of interest to the user has not yet been incorporated into the System.

Obtaining Materials


The listing of materials annotated in the Bibliography Section includes an indication of where these materials are available. If an item is listed as being available from a source other than the Denver Service Center (DSC), it should be requested from that source whenever possible. If, however, an item is needed on short notice or is not available from another source, it may be obtained by request from the DSC Recreation Staff.

Mailing Code: D-370
FTS Number: (303)234-5094

Requests for materials should identify the requested materials by author, title, and citation number. Most materials distributed by DSC will be for retention by the requesting office, but some will be available on a loan basis only.

User Input

During the development period, suggestions from System users on ways in which the value of the System could be increased would be appreciated. As indicated in the "System Development" discussion, the listing of topics on which bibliographies are being prepared is a working list and is open to revision. User suggestions on possible revisions would be particularly helpful. Feedback would also be useful on the value of the materials listed in the bibliographies, or if any vital materials have been missed in bibliography compilation, input on that point would be appreciated. These user comments may be directed to the DSC Recreation Staff using the mailing code or FTS number listed in the previous section.



BIBLIOGRAPHY SECTION

CONTENTS

Release Nos. 1-7

<u>Topic*</u>	<u>Citation</u>	<u>Page Numbers</u>
Carrying Capacity Concept	1 - 5	11 - 13
Wilderness/Primitive Areas	6 - 14	14 - 18
River Management	15 - 19	19 - 21
Visitor Use Analysis	20 - 27	22 - 25
Visual Resource Management	28 - 40	26 - 31
Interpretation	41 - 47	32 - 35
Research Natural Areas	48 - 53	36 - 39
Recreation Planning Concepts	54 - 61	40 - 43
Resource Inventory	62 - 66	44 - 47
Off-Road Vehicles	67 - 73	48 - 51
Undesirable Behavior	74 - 79	52 - 55
Recreation Psychology	80 - 87	56 - 60
Cultural Resources	88 - 93	61 - 64
 <u>Index Section</u>		 65 - 67

*NOTE: Topics are arranged in the order of bibliography completion.

CARRYING CAPACITY CONCEPT

- 1 Frissell, Sidney S., Jr., and George H. Stankey
1972. Wilderness environmental quality: search for social and ecological harmony. Proceedings, Society of American Foresters Annual Meeting, Hot Springs, Ark., Oct. 4.

Describes a recreation carrying capacity model based on a "limits of acceptable change" concept. This concept is discussed as a means of identifying the limiting constraint in a given management situation from among the various ecological and social components of capacity.

Index Terms: Carrying capacity, Wilderness, Management

Available: (1) Intermountain Forest and Range Experiment Station
(2) DSC

- 2 Lime, David W., and George H. Stankey
1971. Carrying capacity: maintaining outdoor recreation quality. p. 174-184. In Forest Recreation Symposium Proceedings, Northeastern Forest Experiment Station, Upper Darby, Pa.

Defines what is meant by the recreational carrying capacity concept and identifies three basic components of capacity. Reviews what is known about the effects of recreational use on physical resources and visitor enjoyment and discusses techniques for managing both resources and visitors consistent with carrying capacity considerations.

Index Terms: Carrying capacity, Planning, Site design, Use regulation, Management.

Available: (1) DSC

3. Lucas, Robert C., and George H. Stankey
1974. Social carrying capacity for backcountry recreation. p. 14-23. In Outdoor Recreation Research: Applying the results. North Central Forest Experiment Station, St. Paul, Minnesota. USDA Forest Service Gen. Tech. Rep. NC-9.

Focuses on the recreational carrying capacity of wildland areas which provide opportunities for dispersed recreation activity. Discusses management objectives, visitor attitudes, and resource impacts as determinants of carrying capacity. Examines growing use, decreasing opportunities, and the lack of comprehensive management program as factors contributing to carrying capacity problems. Reviews carrying capacity research findings as they apply to the management of wildland areas.

Index Terms: Carrying capacity, Preferences, Dispersed use, Management

Available: (1) North Central Forest Experiment Station
(2) DSC

4 Stankey, George H., and David W. Lime

1973. Recreational carrying capacity: an annotated bibliography. Intermountain Forest and Range Experiment Station, Ogden, Utah, USDA Forest Service Gen. Tech. Rep. INT-3, 45 p.

An annotated bibliography including over 200 citations covering the concept of recreational carrying capacity, the ecological and social dimensions of capacity, and carrying capacity related management techniques.

Index Terms: Carrying capacity: Site design, Operations and maintenance, Perception, Motivation, Use regulation, Management

Available: (1) Intermountain Forest and Range Experiment Station
(2) DSC

5 Wagar, J. Alan

1974. Recreational carrying capacity reconsidered. Journal of Forestry, 72(5):274-278.

Suggests that carrying capacity concepts focus attention on physical site factors to the detriment of quality of experience, management patterns, and off-site factors. Recommends focusing managerial decisions on "use limits" or "use-intensity quality relationships". Discusses how use limits for a particular resource should be set by considering the flow of benefits from the entire system of resources available. Describes zoning as a tool for implementing use limits and examines the appropriateness of use limits for dealing with different management situations.

Index Terms: Carrying capacity, Planning, Management, Use regulation.

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

- Chubb, Michael, and Peter Ashton
1969. Park and recreation standards research: the creation of environmental quality controls for recreation. Report to the Natl. Rec. and Park Assoc., Tech. Rep. 5, Recreation Res. and Planning Unit, Mich. State Univ. East Lansing, 76 p.
- Fisher, Anthony C., and John V. Krutilla
1972. Determination of optional capacity of resource-based recreation facilities. Nat. Resour. J. 12:417-444
- Lucas, Robert C.
1964. The recreational capacity of the Quetico-Superior Area. Lake States Forest Experiment Station, St. Paul, Minn., USDA, Forest Service. Res. Pap. LS-15. 34 p.
- Wagar, J. Alan
1964. The carrying capacity of wild lands for recreation. Soc. Am. For., Forest Sci. Monogr. 7, 23 p.
- Wagar, J. Alan
1966. Quality in outdoor recreation. Trends in Parks and Recreation. 3(3):9-12.
- Wagar, J. Alan
1968. The place of carrying capacity in the management of recreation lands. Rocky Mt. High Plains Park and Recreation Journal. 3(1):37-45.

WILDERNESS/PRIMITIVE AREAS

- 6 Hendee, John C., William R. Catton, Jr., Larry D. Marlow, and C. Frank Brockman.

1968 Wilderness users in the Pacific Northwest -- their characteristics, values, and management preferences. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon, USDA., Forest Service, Res. Pap. PNW-61 92 p.

Reports a study of visitors to three western wilderness areas. Discusses visitors' socioeconomic characteristics and their past and present patterns of wildland recreation participation. Differentiates users on the basis of attitudes revealed by a "wildernism" scale. Identifies norms held by users relating to wilderness use and management, and examines visitor preferences regarding a number of possible wilderness management actions.

Index Terms: Wilderness, Management, Characteristics, Preferences, Behavior, Motivation

Available: (1) DSC

- 7 Hendee, John C., and Robert W. Harris
1970. Foresters' perception of wilderness user attitudes and preferences. Journal of Forestry 68(12):759-762.

Examines wilderness managers' perceptions and attitudes regarding wilderness, finding managers' attitudes to be similar to those of wilderness users and that managers correctly perceive wilderness user attitudes on management behavior norms. However, managers misperceived user views on certain important issues, overestimating user support for facility development and the pervalence of purist attitudes, while underestimating user support for behavior control measures. Managers also failed to anticipate the large proportion of users taking a neutral position on specific wilderness issues.

Index Terms: Wilderness, Preferences, Characteristics

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

- 8 Hendee, John C., and Robert C. Lucas
1973 Mandatory wilderness permits: a necessary management tool. Journal of Forestry 71(4):205-209.

Advocates requiring wilderness visitors to obtain a use permit. Discusses the limitations of visitor self-registration systems as a wilderness management tool, and then examines the costs and benefits to managers and users of mandatory permits. Points out survey research data indicating general visitor acceptance of mandatory permits.

Index Terms: Wilderness, Management, Visitor use analysis.

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

- 9 Hendee, John C., and George H. Stankey
1973. Biocentricity in wilderness management. Bioscience 23(9):535-538.

Identifies two philosophies of wilderness management, "anthropocentric and biocentric", which are emerging as management agencies work to formulate wilderness management policy. Details the arguments for and against adopting a biocentric management philosophy, emphasizing theoretical arguments, empirical evidence, and practical management considerations as supporting that philosophy. Calls for a careful consideration of management philosophy before expedient, specific decisions limit the options available.

Index Terms: Wilderness, Management, Policy

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

- 10 Lime, David W., and Roland G. Buchman
1974. Putting wilderness permit information to work. Journal of Forestry 72(10):622-626.

Discusses how information obtained from wilderness use permits can help managers to be more aware of patterns and trends of wilderness use and to improve the effectiveness of their management programs. Points out that information obtained from permits can also be useful to visitors in planning their wilderness trip.

Index Terms: Wilderness, Permits, Visitor use analysis.

Available: (1) North Central Forest Experiment Station
(2) DSC

- 11 Lucas, Robert C.

1974. Forest Service wilderness research in the Rockies --
what we've learned so far. Western Wildlands 1(2):5-12.

Provides an overview of recent and on-going wilderness research activity. Focuses on research dealing with the ecological and social aspects of managing established wilderness areas. Most of the studies reported deal with social carrying capacity and other visitor use management issues.

Index Terms: Wilderness, Carrying capacity, Characteristics

Available: (1) DSC

- 12 Lucas, Robert C.

1973. Wilderness: A management framework. Journal of Soil
and Water Conservation. 28(4):150-154.

Points out that wilderness does require management and that it must be managed with an awareness of the special nature of the wilderness resource. Describes wilderness management as involving ecological and social aspects. Some of the management approaches and actions involved in these two aspects of management are examined.

Index Terms: Wilderness, Management, Carrying capacity

Available: (1) Intermountain Forest and Range Experiment Station
(2) DSC

- 13 Stankey, George H.

1973. Visitor perception of wilderness recreation carrying
capacity. Intermountain Forest and Range Experiment
Station, Ogden, Utah. USDA Forest Service, Res. Pap.
INT-142, 61 p.

Reports a study designed to examine wilderness visitors' perceptions and attitudes regarding several parameters of social carrying capacity including crowding, littering, and conflicts between user groups. Also examines visitor reactions to some management techniques which might be utilized to alleviate these problems. Discusses a number of management actions which study findings indicate might be appropriate means of both improving visitor satisfaction and lessening the environmental costs of wilderness use.

Index Terms: Wilderness, Management, Carrying capacity, Motivation,
Characteristics, Perception, Preferences.

Available: (1) Intermountain Forest and Range Experiment Station
(2) DSC

- 14 Stankey, George H., Robert C. Lucas, and David W. Lime
1974. Patterns of wilderness use as related to congestion
and solitude. Paper presented to the annual meeting
of the Association of American Geographers. Seattle,
Washington, April 29, 19 p.

Discusses how increasing wilderness recreation use pressures are resulting in congested conditions that threaten both the quality of the recreation experience and ecosystem integrity. Examines spatial and temporal patterns of congestion, exploring both between and within area variations in use distribution and reviews the management implications of these distribution imbalances.

Index Terms: Wilderness, Visitor use analysis, Carrying capacity.

Available: (1) North Central Forest Experiment Station
(2) DSC

- Barton, Michael A.
1969. Water pollution in remote recreational areas. *J. Soil and Water Conserv.* 24(40):132-134.
- Burch, William R., Jr., and Wiley D. Wenger, Jr.
1967. The social characteristics of participants in three styles of family camping, USDA Forest Service Res. Pap. PNW-48. 48 p.
- Catton, William R., Jr.
1969. Motivations of wilderness users. *Pulp and Paper Mag. of Canada.* December 19, 1969. 121-126.
- Cicchetti, Charles J. and V. Kerry Smith.
1973. Congestion, quality deterioration, and optimal use; wilderness recreation in the Spanish Peaks Primitive Area. *Social Science Research*, 2(1):15-30.
- Elsner, Gary H.
1972. Wilderness management...a computerized system for summarizing permit information. USDA For. Serv. Gen. Tech. Rep. PSW-2.8p.
- Hay, Edwards
1974. Wilderness experiment; it's working. *Amer. For.* 89(12):27-29.
- Heinselman, Miron L.
1970. Preserving nature in forested wilderness areas and national parks. *Nat'l. Parks and Conserv. Mag.* 44(276):8-14.
- Hendee, John C.
1974. A scientist's views on some current wilderness management issues. *Western Wildlands* 1(2):27-31.
- Lime, D. W. and G. A. Lorence
1974. Improving estimates of wilderness use from mandatory travel permits. USDA For. Serv. Res. Pap. NC-104. 7 p.
- Lucas, Robert C.
1964. Wilderness perception and use: the example of the Boundary Waters Canoe Area. *Natur. Res. J.* 3(1):394-411.
- Lucas, Robert C., and Jerry L. Oltman
1971. Survey sampling wilderness visitors. *J. Leisure Research* 3(1):28-43.
- Smith, V. Kerry, David Webster, and Norman Heck
1974. Analyzing the use of wilderness. *Simulation* 22(4):93-96.
- Stankey, George H.
1971. Myths in wilderness decision-making. *J. Soil and Water Conserv.* 26(5):183-188.

RIVER MANAGEMENT

15. Boster, M. A., R. L. Gum, and D. E. Monarchi
1973. A socio-economics analysis of Colorado River trips
with policy implications. The Travel Research
Journal. 12(1):7-10.

Briefly reports a study of people taking Colorado River trips through the Grand Canyon. Examines age, income, and employment characteristics of river trip participants. Discusses some factors influencing trip appreciation with emphasis on the perception of crowding, and considers the attitudes toward use limitations expressed by trip participants.

Index Terms: Rivers, Characteristics, Preferences, Carrying Capacity.

Available: (1) DSC

16. McCool, S. F., L. E. Royer, J. J. Kennedy, and J. D. Hunt.
1974. Recreational use and management problems on Utah's
wild rivers. Proceedings of the Utah Academy of
Sciences, Arts, and Letters, 51(1):109-115.

Considers how the dramatic increase in the recreational use of wild rivers has caused problems for land managers in determining appropriate managerial reactions. Discusses the constraints imposed on management strategies by (1) policy mandates, (2) resource characteristics, and (3) user perceptions; and explores the implications of these three factors for a use-capacity oriented management system.

Index Terms: Rivers, Carrying Capacity.

Available: (1) DSC

17. Dolan, R., A. Howard, and A. Gallenson
1975. Man's impact on the Colorado River in the Grand Canyon.
American Scientist 62(4):392-401.

Discusses the environmental modifications occurring along the Colorado River in Grand Canyon as a result of (1) construction of Glen Canyon Dam, and (2) the increased presence of man in the canyon. Also mentions some of the implications that changes in the ecosystem may have for river recreational use.

Index Terms: Rivers, Environmental Impact.

Available: (1) DSC

- 18 Interagency Whitewater Committee
1975. Interagency Whitewater Management Guidelines,
1975 Edition.

Presents guidelines for whitewater river management developed by a committee composed of representatives from the Bureau of Land Management, National Park Service, U. S. Forest Service, and U. S. Coast Guard. The guidelines and attached appendices deal with a range of river management topics including: use limitations and allotments, regulation of commercial and private operations, operational requirements, public health and safety, and standardized permits.

Index Terms: Rivers, Management, Permits, Use regulation,
Commercial services.

Available: (1) DSC

- 19 Lime, David W.
1975. Physical resource and social determinants of whitewater river recreation and some implications of these conditions for visitor management. A paper presented at the Whitewater River Carrying Capacity Symposium, Moab, Utah, January 17-19. 15 p. mimeo.

Reviews some of the unique resource and use conditions associated with recreation on western whitewater rivers and speculates on alternative management strategies which might be responsive to these conditions.

Index Terms: Rivers, Management

Available: (1) DSC

Godfrey, E. Bruce, and Robert L. Peckfelder.

1972. Recreation carrying capacity and wild rivers: a study of the Middle Fork of the Salmon. A paper presented at the annual meeting of the Western Agricultural Economics Association. Logan, Utah, July 25.

Hunt, John D.

1973. Some thoughts on wild river recreation carrying capacity. A paper presented at the Rocky Mountain High Plains Conference. Fort Collins, Colorado. 12 p. mimeo.

Hunt, J. D., J. J. Kennedy, N. E. West, W. J. Barmore, and H. Eklund.

1973. River Use in Dinosaur National Monument: an interim report. Institute for the Study of Outdoor Recreation and Tourism, Utah State University, Logan, Utah, 42 p.

McCool, Stephen L.

1975. Selecting a whitewater river management strategy. A paper presented at the Whitewater River Carrying Capacity Symposium. Moab, Utah. January 17. 14 p. mimeo.

U. S. Department of the Interior, and U. S. Forest Service.

1970. Guidelines for evaluating wild, scenic and recreational river areas proposed for inclusion in the National Wild and Scenic Rivers System under Section 2, Public Law 90-542. Wash., U. S. Gov't. Printing Office. 12 p.

VISITOR USE ANALYSIS

Most of the materials listed in this section are limited in their usefulness to Bureau recreation specialists because (1) they assume that the user is tied into the U. S. Forest Service RIM system and will have his data processed through that system, or (2) they require an understanding of statistical concepts. These materials are being included in the Recreation Literature Access System with the idea that those who do possess statistical analysis skills will be able to utilize the concepts presented in their visitor use analysis efforts, and that other users will at least gain some familiarity with the topic.

20. Cochran, William G.

1963. Sampling techniques. New York, John Wiley and Sons, Inc.

A theoretically oriented text on sampling, intended for use by those with a solid background in statistical concepts and methods, this reference provides a discussion of the sampling and estimation techniques which underly visitor use measurement and use projection procedures. Topics covered include simple and stratified random sampling, ratio and regression estimation, and double sampling. (DSC Shelf list #9535 Sa).

Index Terms: Visitor use analysis

Available: (1) DSC - on loan.

21. James, George A.

1971. Inventorying recreation use, p. 78-95. In Forest Recreation Symposium Proceedings, Northeastern Forest Experiment Station, Upper Darby, Pa.

Briefly discusses recreation use estimation, reviews a number of sampling techniques developed for use estimation, and describes the Forest Service Recreation Information Management system. The reviews of sampling techniques provide literature citation, discussion of what the techniques do and how they work, cost information, and evaluatory comments. Reviews are organized into three groups according to the techniques applicability to (1) mass recreation use at developed sites, (2) general dispersed use, and (3) wilderness use.

Index Terms: Visitor use analysis.

Available: (1) Southeastern Forest Experiment Station
(2) DSC

22. James, George A., and Robert K. Henley.
1968. Sampling procedures for estimating mass and dispersed types of recreation use on large areas. Southeastern Forest Experiment Station, Asheville, North Carolina. USDA Forest Service Res. Pap. SE-31, 15 p.

Outlines sampling techniques utilized to estimate recreation use on a Forest Service Ranger District. Interviews conducted at road check-points and observations at developed sites were regressed against traffic count data to develop use estimates by activity for both dispersed and massed use. The relationships established provide a means of estimating use for several years on the basis of traffic data alone. Data analysis procedures receive only brief mention in the discussion.

Index Terms: Visitor use analysis, Dispersed use

Available: (1) DSC

- 23 James, George A., and Thomas H. Ripley
1963. Instructions for using traffic counters to estimate recreation visits and use. Southeastern Forest Experiment Station, Asheville, North Carolina, U.S.D.A. Forest Service Res. Pap. SE-3, 12 p.

Describes a sampling technique, double sampling, designed to estimate use on developed recreation sites which makes it possible to update estimates for several years on the basis of traffic count data only. This technique, with modifications in procedural details, has become the standard approach to measuring concentrated recreation use. Statistical procedures for developing estimation equations from the sampling data are not discussed.

Index Terms: Visitor use analysis.

Available: (1) DSC

- 24 Lucas, Robert C., Hans T. Schreuder, and George A. James
1971. Wilderness use estimation: a pilot test of sampling procedures on the Mission Mountains Primitive area in Montana. Intermountain Forest and Range Experiment Station, Ogden, Utah, USDA Forest Service Res. Pap. INT-109. 44 p.

Describes a study testing methods for estimating wilderness recreation use. Trail register information and field sampling data were used to generate use estimates. Several analytical procedures were tested to determine which produced the most precise estimates of use. These methods included (1) raw registration data, (2) stratified random sampling, (3) ratio estimation, and (4) regression estimation.

Index Terms: Visitor use analysis, Wilderness, Registration systems

Available: (1) Intermountain Forest and Range Experiment Station.
(2) DSC

- 25 Mendenhall, William; Lyman Ott; and Richard L. Scheaffer.
1971. Elementary survey sampling. Wadsworth Publishing
Company, Inc. Belmont, Calif. 247 p.

An elementary text on sampling design and analysis intended for use by those with a minimal background in statistical methods. Discusses the concepts required in the design of sampling procedures for measuring current visitor use. Emphasizes the practical aspects of sample survey topics including sample design, simple and stratified random sampling, and ratio estimation. (DSC Shelf list #9535 EIME).

Index Terms: Visitor use analysis

Available: (1) DSC - on loan.

- 26 Wagar, J. Alan
1969. Estimation of visitor use from self-registration at developed recreation sites. Intermountain Forest and Range Experiment Station, Ogden, Utah. USDA Forest Service Res. Pap. INT-70. 27 p.

Discusses a method for using visitor self-registration as a means of estimating use of developed recreation sites. This method provides estimates for a site during an initial season of calibration, for the same site in subsequent seasons, and for nearby sites with no calibration. Detailed sampling instructions are provided as is a discussion of the statistical concepts employed.

Index Terms: Visitor use analysis, Registration systems

Available: (1) Intermountain Forest and Range Experiment Station
(2) DSC

- 27 Reserved

- Bury, Richard L. and Ruth Margolies
1964. A method for estimating current attendance on sets of campgrounds...a pilot study. Pacific Southwest Forest and Range Experiment Station. USDA Forest Service Res. Note PSW-42, 6 p.
- Draper, Norman; and Harry Smith
1966. Applied regression analysis. John Wiley and Sons, Inc. 407 p.
- Elsner, Gary H.
1970. Camping use-axle count relationship estimation with desirable properties. Forest Science 16(4):493-495.
- James, George A., and John L. Rich
1966. Estimating recreation use on a complex of developed sites. Southeastern Forest Exp. Sta. USDA Forest Service Res. Note SE-64, 8 p.
- James, George A., and Gary L. Tyre
1967. Use of water-meter records to estimate recreation visits and use on developed sites. Southeastern Forest Exp. Sta. USDA Forest Service Res. Note SE-73, 3 p.
- Lime, David W., and Grace A. Lorence
1974. Improving estimates of wilderness use from mandatory travel permits. North Central Forest Exp. Sta. USDA Forest Service, Res. Pap. NC-101, 7 p.
- Lucas, Robert C.
1963. Bias in estimating recreationists' length of stay from sample interviews. Journal of Forestry 61(12): 912-914.
- Tyre, Gary L., and Gene R. Welch
1972. Program manual for estimating use and related statistics on developed recreation sites. Southeastern Forest Exp. Sta. USDA Forest Service Gen. Tech. Rep. SE-1, 44 p.

VISUAL RESOURCE MANAGEMENT

28. Cerny, James W.
1974. Scenic analysis and assessment. CRC Critical Reviews in Environmental Control 4(2):221-250.

Provides an overview of the topic of scenic or visual resource analysis. The legislative or legal bases of scenic preservation and the analytical problems involved in attempting to measure visual resource quality are discussed briefly, but the main thrust of the article is the review of the major methods of scenic analysis which have been developed in recent years.

Index Terms: Visual resource analysis.

Available: (1) DSC

29. Craik, Kenneth H.
1970. A system of landscape dimensions: appraisal of its scientific application. Report to Resources for the Future, Inc. Institute of Personality Assessment and Research, University of California, Berkeley. 58 p.

Reports research results obtained from tests of three systems designed for the assessment of landscapes. Examines inter-observer agreement and relationships between landscape dimensions and aesthetic appeal obtained from "Landscape Rating Scales" and a "Graphic Landscape Typology." Development of a "Landscape Adjective Check List" is reported, and a listing of adjectives that are frequently applied to aesthetically appealing and unappealing scenes is included.

Index Terms: Visual resource analysis.

Available: (1) DSC

30. Jones, Grant R., et al.
1975. A method for the quantification of aesthetic values for environmental decision making. Nuclear Technology 25: 682-713.

Describes in detail a method for predicting the visual impact to be expected from the introduction of a major facility into a landscape. The described method is based on a visual quality analysis approach derived from familiar landscape evaluation concepts, and on a technique for simulating the anticipated facility appearance from selected viewpoints. Operation of the method is illustrated by its employment in prediction of the visual impact of a nuclear power plant.

Index Terms: Visual resource protection, Visual resource analysis.

Available: (1) DSC

31. Litton, R. Burton, Jr.
1973. Landscape control points: a procedure for predicting and monitoring visual impacts. Pacific Southwest Forest and Range Exp. Sta., Berkeley, Calif. USDA Forest Service Res. Pap. PSW-91, 22 p.

Discusses the use of a network of permanently established observation sites as a means of studying the visual impact of alterations to the landscape and as an approach to integrating visual analysis with management planning. Methods of plotting visible areas by field observation, cross sectioning, or computerized mapping are also reviewed.

Index Terms: Landscape visibility analysis.

Available: (1) Superintendent of Documents, U.S. Gov't Printing Office, Washington, D.C. 20402 (Price \$1.05)
(2) DSC - limited supply

32. Litton, R. Burton, Jr.
1974. Visual vulnerability of forest landscapes. p. 87-91. In Outdoor Recreation Research: Applying the Results. North Central Forest Experiment Station, St. Paul, Minnesota. USDA Forest Service Gen. Tech. Rep. NC-9.

Considers landscape characteristics that tend to produce vulnerability or resistance to visual impacts of man-made activities. Points out how analysis of visual vulnerability in the planning process can serve to minimize such impacts.

Index Terms: Visual resource protection.

Available: (1) North Central Forest Experiment Station
(2) DSC

33. Travis, Michael R., Gary H. Elsner, Wayne D. Iverson, and Christine G. Johnson
1975. VIEWIT: Computation of seen areas, slope, and aspect for land-use planning. Pacific Southwest Forest and Range Exp. Sta., Berkeley, Calif. USDA Forest Service Gen. Tech. Rep. PSW-11. 70 p.

This user's guide provides instructions for using VIEWIT - a computerized technique for delineating the terrain visible from a single point or from multiple observer points, and for doing slope and aspect analysis. System capabilities and some possible applications are discussed and an example of system outputs is provided.

Index Terms: Landscape visibility analysis.

Available: (1) Pacific Southwest Forest and Range Experiment Station.
(2) DSC

34. U.S. Department of Agriculture, Forest Service
1973. National forest landscape management, Volume I.
Agriculture Handbook No. 434, Superintendent of Documents,
Washington, D.C. 77 p.

Outlines the principles and concepts which underlie landscape or visual resource analysis. Discusses how the character of a landscape can be described in terms of four "dominance elements" and how the relative impact of these elements is influenced by a number of perceptual and environmental factors.

Index Terms: Visual resource analysis.

- Available: (1) BLM District Offices
(2) Superintendent of Documents, U.S. Gov't Printing
Office, Washington, D.C. 20402, (Price \$1.50, Stock
No. 0100-2583)
(3) DSC

35. U.S. Department of Agriculture, Forest Service
1974. National forest landscape management, Volume II, Chapter I
(The visual management system) Agriculture Handbook 462,
Superintendent of Documents, Washington, D.C. 47 p.

This publication utilizes the concepts discussed in National Forest Landscape Management, Volume I, as the basis for developing a visual management system. This system identifies visual quality objectives for forest management based on criteria of scenic value and "sensitivity level." Sensitivity level is determined by the amount of use that an area receives and the importance of scenic quality to those uses.

Index Terms: Visual resource analysis, Visual resource protection.

- Available: (1) BLM District Offices
(2) Superintendent of Documents, U.S. Gov't Printing
Office, Washington, D.C. 20402, (Stock
No. 0101-00358)
(3) DSC

36. U. S. Department of Agriculture, Forest Service.
1975. National Forest landscape management, Volume II, Chapter 2
Utilities, Agriculture Handbook 478, Superintendent of
Documents, Washington, D. C. 147 p.

Discusses methods by which the visual impacts of utility installations (gaslines, electric transmission lines, microwave systems, and water-collection systems) can be minimized by system planning, construction procedures, and facility design. Basic technical aspects of utility design and installation are also described to provide land managers with insight into those considerations.

Index Terms: Visual resource protection.

- Available: (1) Will be distributed to all District Offices.
(2) Superintendent of Documents, U. S. Govt.
Printing Office, Washington, D.C. 20402,
(Price \$3.55, Stock No. 0100-03357)
(3) DSC

37. U. S. Department of Agriculture, Forest Service, Northern Region
1972. Topic areas. p.59-129. In Forest Landscape Management.

and

Wyoming Forest Study Team

1971. Forest management in Wyoming. U. S. Department of
Agriculture, Forest Service. p. 26-38, and 50-54.

These excerpts from two publications discuss some general techniques that may be employed to minimize the visual discord produced by management actions such as timber harvests, roads, or structures. The factors in each activity which tend to cause discord are considered and approaches to reducing the visual contracts created by these factors are described.

Index Terms: Visual resource protection.

- Available: (1) DSC

38. U.S. Department of the Interior and U.S. Department of Agriculture
1970. Environmental criteria for electric transmission systems.
Superintendent of Documents, Washington, D.C. 52 p.

Most of the environmental criteria discussed in this publication are oriented toward reducing the visual impacts of electric transmission systems. Methods of visual contrast reduction by means of route selection, system design, construction procedures, and maintenance activities are described for power transmission and communications facilities.

Index Terms: Visual resource protection.

Available: (1) BLM District Offices
(2) Superintendent of Documents, U.S. Gov't Printing
Office, Washington, D.C. 20402 (Price \$.65)
(3) DSC - limited supply.

39. Unknown. Progress report landscape visibility natural resource lands visible from Interstate 70 in Colorado. A cooperative pilot study of the Federal Highway Administration, Bureau of Land Management, and Colorado Division of Highways. 31 p.

This report describes and demonstrates a methodology for the inventory and analysis of landscapes visible from a highway or other surface transportation corridor. The method is applied to an analysis of Interstate 70 between Denver, Colorado and the Colorado-Utah State line.

Index Terms: Landscape visibility analysis

Available: (1) DSC

40. Reserved

INTERPRETATION

41. Brown, Perry J.
1974. Procedures for developing an interpretive master plan. College of Forestry and Natural Resources, Colorado State University, Ft. Collins. 14 p.

Describes a procedure for developing an interpretive master plan for a recreation area, park, or natural area. The planning approach discussed begins with the identification of (1) interpretive policy, (2) potential audience characteristics, and (3) the interpretable resources of the area. The advocated planning procedure then employs these three classes of information in determining specific interpretive objectives, designing objective-oriented programs, preparing a plan implementation schedule and constructing program evaluation plans.

Index Terms: Interpretation, Planning

Available: (1) DSC

42. Dick, Ronald E., David T. McKee, and J. Alan Wagar
1974. A summary and annotated bibliography of communications principles. Journal of Environmental Education 5(4):8-13.

This publication was prepared specifically to acquaint environmental interpreters and educators with major principles of communication. The principles are summarized under three headings: (1) Communicator or Source Factors, (2) Communication or Message Factors, and (3) Receiver or Audience Factors. 57 bibliography references are keyed to the listing of principles.

Index Terms: Environmental education, Interpretation

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC



43. Hanna, John W. (compiled by)
1975. Interpretive skills for environmental communicators,
2nd. ed., Texas A&M Univ., College Station,
Texas. 342 p.

This publication contains a collection of materials, including National Park Service and Forest Service publications, focusing on interpretive methods and techniques. Topics covered include: interpretive planning, visitor center operation, writing, talk preparation and presentation, living history, trails, exhibits and signing.

Index Terms: Interpretation, Environmental Education

Available: (1) Department of Recreation and Parks
Texas A&M University
College Station, Texas 77843
(Price: \$5.25)

44. Hunt, John D. and Perry J. Brown
1971. Who can read our writing? Journal of
Environmental Education 2(4):27-29.

When rated on a standardized scale for evaluating written material, a sample of interpretive publications prepared by resource management agencies scored as "difficult" to read and "dull" in human interest. The authors note that such material is of limited effectiveness in achieving interpretive objectives. The description of the rating scale utilized is limited, but should be adequate to allow the interpreter to evaluate his own efforts.

Index Terms: Interpretation

Available: (1) DSC

45. Tilden, Freeman
1967. Interpreting our heritage. University of
North Carolina Press, Chapel Hill, 120 p.

This book has become the basic guide in the field of interpretation. It blends a philosophy of interpretation with the discussion of practical principles. The statements of principles are supplemented by chapters focusing on topics such as interpretive writing, approaches to the interpretation of historic and aesthetic resources, and the place of equipment in the interpretive effort.

Index Terms: Interpretation, Environmental Education

Available: (1) BLM District Offices
(2) DSC



46. Wagar, J. Alan
1974. Interpretation to increase benefits for recreationists. p. 101-105. In Outdoor Recreation Research: Applying the Results. North Central Forest Experiment Station, St. Paul, Minnesota. USDA Forest Service General Technical Report NC-9.

This article first examines the questions "What is interpretation?" and "Why should resource managers bother themselves with it?" It then focuses on some aspects of effective interpretation including the definition of objectives, some techniques for gaining and holding visitor attention, and the need to evaluate the interpretive effort based on visitor feedback.

Index Terms: Interpretation

- Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

47. Washburne, Randal F., and J. Alan Wagar
1972. Evaluating visitor response to exhibit content. Curator XV(3):248-254.

Reports a study examining visitor preferences for different types of interpretive subject matter and means of presentation. The findings indicating which subjects, means of presentation, and strategies of message communication visitors like (or dislike) are discussed in terms of their implications for interpretive planning.

Index Terms: Interpretation

- Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC



- Badaracco, Robert J.
1969. Interpretation - the essential commitment
Trends 6(1):19-22.
- Boulanger, F. David, and John P. Smith
1973. Educational principles and techniques for
interpreters. Pacific Northwest Forest and
Range Experiment Station, Portland, Oregon.
USDA Forest Service General Technical Report
PNW-9, 24 p.
- Brown, Perry J. and John D. Hunt
1969. The influence of information signs on visitor
distribution and use. Journal of Leisure
Research 1(1):79-83.
- Field, Donald R., and J. Alan Wagar
1973. Visitor groups and interpretation in parks
and outdoor leisure settings. Journal of
Environmental Education 5(1):12-17.
- Mahaffey, Ben D.
1970. Effectiveness and preference for selected
interpretive media. Environmental Education
1(4):125-128.
- Ross, Terence L., and George H. Moeller
1974. Communicating rules in recreation areas.
Northeastern Forest Experiment Station,
Upper Darby, Pa. USDA Forest Service
Research Paper NE-297, 12 p.
- Shiner, James W., and Elwood L. Shafer, Jr.
1975. How long do people look at and listen to
forest-oriented exhibits. Northeastern
Experiment Station, Upper Darby, Pa. USDA
Forest Service Research Paper NE-325, 16 p.
- U.S. Department of Agriculture, Forest Service
1964. Developing the self-guiding trail in the
national forests. Miscellaneous Publication
968, Superintendent of Documents, Washington,
D.C. 18 p.



RESEARCH NATURAL AREAS

48. Federal Committee on Research Natural Areas

1968. A directory of research natural areas on Federal lands of the United States of America. Superintendent of Documents, Washington, D.C., 129 p.

The listing of research natural areas in this directory is substantially out-of-date, but the classification system used to characterize the ecological features of the areas is useful. The directory contains a complete key to this classification system and cites references which provide a more detailed description of ecosystem classification approaches.

Index Terms: Research natural areas, Resource inventory

Available: (1) BLM District Offices
(2) DSC - on loan

49. Federal Committee on Research Natural Areas

n.d. Standards and policy guidelines for research natural areas.

The purpose of this document is to provide guidelines for all Federal agencies involved in the management of research natural areas. The concept and objectives of the research natural areas system are briefly stated and then detailed guidelines for area selection, classification, establishment, protection, management and use are presented.

Index Terms: Research natural areas, Management

Available: (1) DSC



50. Franklin, Jerry F., Robert E. Jenkins, and Robert M. Romancier
1972. Research natural areas: contributors to
environmental quality programs. *Journal of
Environmental Quality* 1(2):133-139.

This article outlines the concept, history and scope of the research natural area program, giving particular emphasis to the utility of such areas in environmental quality studies. The values of these areas as sites for obtaining baseline data or conducting integrated ecosystem studies, as natural gene pools, and as educational facilities are discussed in detail.

Index Terms: Research natural areas

Available: (1) DSC

51. Franklin, Jerry F. and James M. Trappe
1968. Natural areas: needs, concepts, and criteria.
Journal of Forestry 66(6):456-461.

This article emphasizes the value of research natural areas for natural resource management oriented research. It also reviews resource management considerations and criteria applicable to the selection and designation of such areas.

Index Terms: Research natural areas

Available: (1) DSC



52. Heinselman, Miron L.
1974. Recreation and/or nature preservation.
p. 36-42 In Outdoor Recreation Research:
Applying The Results. North Central Forest
Experiment Station, St. Paul, Minnesota.
USDA Forest Service Gen. Tech. Rep. NC-9.

The roles that various types of "nature preservation areas" play in protecting natural environments and providing opportunities for recreational use are the focus of this article. Five classes of preservation areas, from strict nature preserves where recreational use is excluded to park reserves where recreation is a major objective, are identified and discussed. The implications of area size, type of recreational use allowed, and management philosophy are also considered in relation to area preservation objectives.

Index Terms: Research natural areas, Wilderness

Available: (1) North Central Forest Experiment Station
(2) DSC

53. Ohmann, Lewis F.
1973. Vegetation data collection in temperate forest
research natural areas. North Central Forest
Experiment Station, St. Paul, Minn. USDA
Forest Service Res. Pap. NC-92, 35 p.

One of the main purposes for setting aside research natural areas is that they provide opportunities for ecological baseline data collection. This report presents a framework for data collection by non-professionals working under the supervision of professional ecologists or resource managers. While this framework was designed for use in a temperate forest system, it could easily be adapted to other systems.

Index Terms: Research natural areas, Resource inventory

Available: (1) North Central Forest Experiment Station
(2) DSC



Jenkins, R. E. and W. B. Bedford

1973. The use of natural areas to establish environmental baselines. Biological Conservation, 5(3):168-174.

The Nature Conservancy

1975. The preservation of natural diversity: a survey and recommendations. Prepared for U. S. Dept. of Interior, Contract No. CX0001-5-0110.

Ohman, Lewis F. and Robert R. Ream

1971. Wilderness ecology; a method of sampling and summarizing data for plant community classification. North Central Forest Experiment Station. St. Paul, Minn., USDA Forest Service Res. Pap. NC-49, 14 p.

Van Dyne, George M. (Ed.)

1969. The ecosystem concept in natural resource management. Academic Press. Inc., New York. 383 p.



RECREATION PLANNING CONCEPTS

NOTE: The materials listed in this section emphasize recreation planning and resource decision-making concepts. Some materials listed under previously released topic headings have dealt extensively with the recreation planning (See citation numbers 2, 5, and 41). Future releases will deal with other aspects of planning such as resource inventory and facility or site planning.

54. Bradley, Michael D.
1973. Decision-making for environmental resources management.
Journal of Environmental Management 1:289-302.

Reviews four decision-making models in terms of their application to environmental and resource management. Three of these models are standard public administration approaches to decision-making; the fourth model employs a systems approach based on insights into ecosystem dynamics. The author calls for an integrated approach to natural resource decision-making incorporating concepts from the traditional models into a systems framework.

Index Terms: Planning, Management.

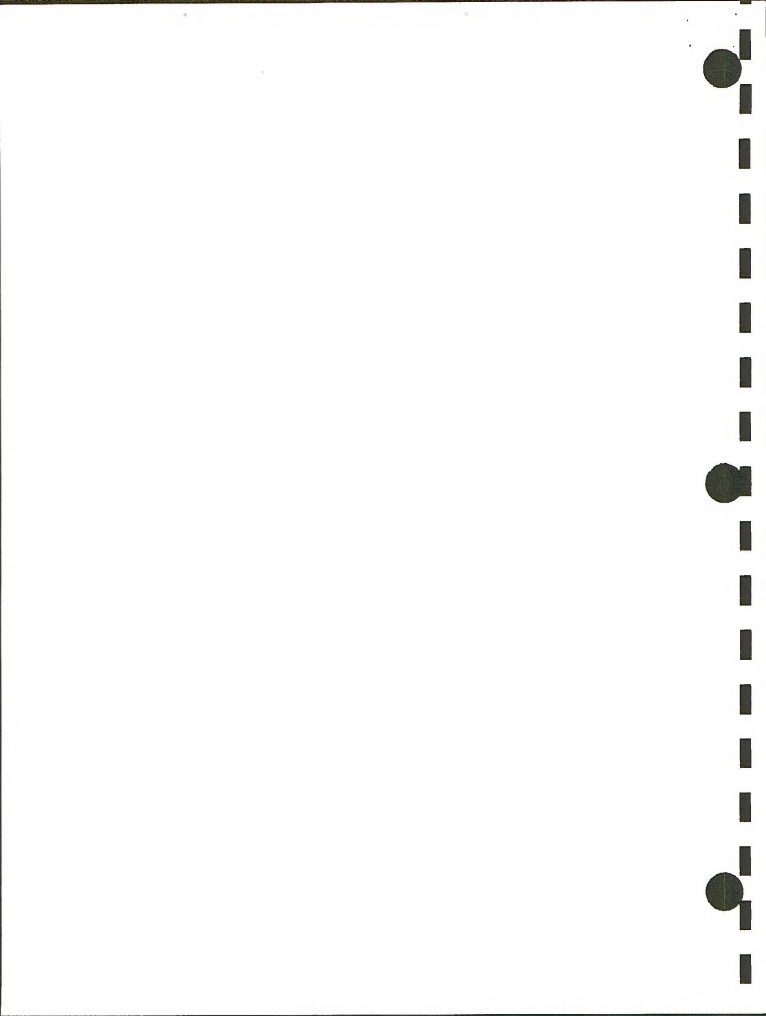
Available: (1) DSC

55. Burch, William R. Jr.
1954. Two concepts for guiding recreation management decisions.
Journal of Forestry 62(10):707-712.

Focuses on two concepts useful to the resource manager responsible for providing recreation opportunities and protecting the resource base. Consideration of the "collective aspects" of recreation behavior is outlined as an approach which will allow the manager to provide a more optimum mix of recreation opportunities, and examination of the user's perception of the resource is suggested as a means of enhancing user satisfaction and reducing management problems.

Index Terms: Planning, Behavior, Management

Available: (1) DSC



56. Clark, Roger N., George H. Stankey, and John C. Hendee
1974. An introduction to CODINVOLVE: a system for analyzing,
storing, and retrieving public input to resource decision.
Pacific Northwest Forest and Range Experiment Sta., Portland,
Oregon, USDA Forest Service, Res. Note PNW-223. 16 p.

This publication describes a system designed for analyzing public input received in the process of resource management decision-making. The basic concepts and assumptions underlying the system are discussed, and general procedures for its implementation are explained.

Index Terms: Planning, Public involvement.

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

57. Fox, I. K.
1970. The nature of planning decisions in a democratic society.
p. 213-224 In Elements of Outdoor Recreation Planning.
B. L. Driver (Ed.), Univ. of Mich. Press, Ann Arbor.

This paper reviews several criteria for evaluating the responsibility of outdoor recreation planners. Planning is defined as a process involving the systematic consideration of objectives and alternative means for satisfying objectives. Some basic democratic principles that must be considered in any planning activity are then identified. Problems specific to outdoor recreation planning (difficulties of projection, evaluation of costs and returns, need to provide for a variety of preferences, etc.) are examined. Multiple planning, a comprehensive perspective, and public participation are suggested as partial solutions to these problems.

Index Terms: Planning

Available: (1) DSC

58. Ingram, Helen M.
1973. Information channels and environmental decision-making.
Natural Resources Journal 13(1):150-169.

This article discusses how the relevance of information or data inputs to resource decisions is influenced by the planning or decision-making process. Factors limiting the information which will be generated and made available for decision-making use are examined along with the factors which determine what of the available information will actually influence decision outcomes. A final section focuses on the implications of these factors for the environmental impact analysis process required under NEPA.

Index Terms: Planning, Management

Available: (1) DSC



Whaley, R. G.

1970. Multiple use decision-making - where do we go from here?
Natural Resources Journal 10(3):557-565.

Examines resource allocation problems associated with public ownership and the resultant absence of market-established prices as indexes of resource values. Decision approaches which attempt to avoid the resource value question are examined with particular attention given to the approach which seeks to analyze the impact of management decisions on regional income, employment, and economic stability. Reviews the techniques that have been used to approximate resource values, pointing out that the different techniques will provide differing estimates of value. Emphasizes that the appropriateness of using a technique in a particular resource allocation situation depends on the underlying objectives and on the necessity that all resources be evaluated using the same valuation technique.

Index Terms: Planning, Management.

Available: (1) DSC

50. Woodbury, Coleman

1966. The role of the regional planner in preserving habitats and scenic values. p. 568-587 In *Future Environments of North America*. F. F. Darling and J. P. Milton (Ed.) Natural History Press, New York.

Although this article is oriented toward regional land use planning, most of its discussion also applies or translates easily to wildland recreation planning. The author presents a broad definition of the planning process and then disserts that definition examining its elements in terms of the roles the planner plays in decision-making and the ways that he functions in those roles.

Index Terms: Planning

Available: (1) DSC

61. Young, Robert C.

1970. Establishment of goals and definition of objectives.
p. 281-272 In *Elements of Outdoor Recreation Planning*,
B. L. Driver (Ed.), Univ. of Mich. Press, Ann Arbor.

This article begins by pointing out that recreation and other forms of planning frequently deal only with the problem of how to accomplish a certain objective and neglect to consider why that objective is being pursued. The author defines a plan as "a reasoned strategy to pursue reasoned goals" and identifies some "universal steps" in planning. The process of establishing goals is examined in detail, followed by a discussion of how goals are converted to specific planning objectives.

Index Terms: Planning

Available: (1) DSC



- Driver, B. L. (Ed.)
1970. Elements of outdoor recreation planning.
Univ. of Mich. Press, Ann Arbor, 316 p.
- Gould, E. M., Jr.
1961. Planning a recreation complex. American Forests
67(8):30-36.
- Hendee, John C., Roger N. Clark, and George H. Stankey
1974. A framework for agency use of public input in resource
decision-making. Journal of Soil and Water Conservation.
29(2):60-66.
- Ridd, Merrill K.
1965. Area-oriented multiple use analysis. Intermountain Forest
and Range Experiment Station, Ogden, Utah, USDA Forest
Service, Res. Pap. INT-21. 14 p.
- Twiss, Robert H.
1974. Strategies for environmental planning in the Upper
Colorado River Region. p. 102-117, in Environmental
Management in the Colorado River Basin, A. B. Crawford
and D. F. Peterson (Ed.), Utah State Univ. Press,
Logan, Utah.
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Sommers (Ed.), Thomas Y. Crowell Co. New York.



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1970. Elements of outdoor recreation planning.
Univ. of Mich. Press, Ann Arbor, 316 p.
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1961. Planning a recreation complex. *American Forests*
67(8):30-36.
- Hendee, John C., Roger N. Clark, and George H. Stankey
1974. A framework for agency use of public input in resource
decision-making. *Journal of Soil and Water Conservation*.
29(2):60-66.
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1965. Area-oriented multiple use analysis. Intermountain Forest
and Range Experiment Station, Ogden, Utah, USDA Forest
Service, Res. Pap. INT-21. 14 p.
- Twiss, Robert H.
1974. Strategies for environmental planning in the Upper
Colorado River Region. p. 102-117, In *Environmental
Management in the Colorado River Basin*, A. B. Crawford
and D. F. Peterson (Ed.), Utah State Univ. Press,
Logan, Utah.
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In *Introduction to Geography: Selected Readings*, Dohrs and
Sommers (Ed.), Thomas Y. Crowell Co. New York.



UNDESIRABLE BEHAVIOR

74. Clark, Roger N.
1975. Guidelines for implementing the incentive system for litter control in developed campgrounds, dispersed recreation areas, and in wilderness/backcountry areas. USDA Supplementary Training Handout, Pacific Northwest Forest and Range Experiment Station. 9 p.

Based upon the results of several previous studies, this manual describes a method for reducing litter in several types of recreation areas. Initiated by the area ranger, the incentive system is presented as a step-by-step program for both intensive and dispersed camping areas.

Index Terms: Management, Undesirable Behavior

Available: (1) DSC

75. Clark, Roger N., John C. Hendee, and Fredrick L. Campbell
1971. Depreciative behavior in forest campgrounds: an exploratory study. USDA Forest Service, Pacific Northwest Forest and Range Experiment Station Research Note PNW-161. 12 p.

Vandalism, theft, littering, rule violation, and nuisance behaviors were studied in three campgrounds. The acts committed were analyzed according to type of camper, age group, associated activities, apparent motivation, and type of victim. The reactions of bystanders were also recorded. The data contradict many commonly held beliefs regarding participants in undesirable behavior. Implications of the data are discussed with suggestions for the control of undesirable behavior.

Index Terms: Undesirable Behavior

Available: (1) USFS Pacific Northwest Forest and Range Experiment Station
(2) DSC

76. Clark, Roger N., John C. Hendee, and Robert L. Burgess
1972. The experimental control of littering.
Journal of Environmental Education 4(2):7 p.

Reports on the results of three experiments designed to change the behavior of people who litter. The experiments were conducted in a movie theater, a campground, and a dispersed camping area. They utilized incentive procedures designed to encourage picking up litter. The incentive procedure increased litter pickup by 500 percent in one instance. Traditional methods of litter control are also discussed and evaluated.

Index Terms: Undesirable Behavior

Available: (1) DSC

77. Clark, Roger N., John C. Hendee, and Randel F. Washburne
1972. Litterbags: an evaluation of their use. USDA
Forest Service, Pacific Northwest Forest and
Range Experiment Station Research Note PNW-184.
5 p.

Only a very small porportion of litter bags (3.3%) were deposited in trash cans in a study at a national park. Most litter-bags were carried away unused from the park.

Index Terms: Undesirable Behavior

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

78. Harrison, Anne
1976. Problems: vandalism and depreciative behavior.
p. 473-495 In Interpreting The Environment, by
Grant Sharpe, Wiley and Sons, New York.

This paper provides an overview on the subject of vandalism, although it is primarily concerned with depreciative behavior as it applies to interpretive activities. It identified "typical" vandals and explains psychological factors affecting their behavior. The discussion of vandalism prevention is divided into internal activities (education) and external activities (planning, design, and maintenance). However, some vandalism often persists, and an effective law enforcement program is necessary for its control.

Index Terms: Interpretation, Management, Undesirable Behavior

Available: (1) DSC

79. Wilson, George T.
1966. Vandalism - how to stop it. Management Aids,
Bulletin No. 7. National Recreation and Park
Association, Arlington, Va. 40 p.

This study collected and analyzed 221 observations of practices considered to be effective in reducing vandalism of the facilities or natural areas of parks. Although the study is urban-oriented, most of the solutions given for specific types of vandalism are also applicable to dispersed recreation management. Also discusses general guidelines for the reduction and prevention of vandalism.

Index Terms: Undesirable Behavior

Available: (1) DSC

- Campbell, Fredrick, John C. Hendee, and Roger Clark
1968. Law and order in public parks. Parks and
Recreation (December):28-31, 51-55.
- Clark, Roger N.
1971. Values, behavior, and conflict in modern camping
culture. Journal of Leisure Research 3 (Summer):
143-159.
- Park Practice Program
Grist (numerous entries). National Recreation
and Park Association, National Conference on
State Parks, and National Park Service, Arlington, Va.
- Petty, Paul
1966. Vandalism in National Forests and Parks.
M.S. Thesis, Colorado State University, Ft.
Collins, Colorado.

RECREATION PSYCHOLOGY

80. Catton, William R.
1969. Motivations of wilderness users. Pulp and Paper Magazine of Canada (December 19, 1969):121-126.

Based upon the results of several questionnaires, motivational differences between education classes and urban upbringing of recreationists were determined. Their motivations were inferred from various kinds of data about user characteristics and behavior. Studies on depreciative behavior in public campgrounds were also used to determine several motivations for outdoor recreation use.

Index Terms: Motivation, Wilderness

Available: (1) DSC

81. Driver, B. L.
1976. Toward a better understanding of the social benefits of outdoor recreation participation. Proceedings, Southern States Workshop on Recreation Research Applications. USDA Forest Service, Southeastern Forest Experiment Station and College of Forestry, North Carolina State University, Asheville (in press).

This paper proposes that recreation resource managers need to give more attention to the benefits that a person derives from participation in outdoor recreation activities. These benefits are defined as the ways in which a person functions more effectively after having participated in an activity. The importance of information on these benefits to recreation managers is discussed, and the state of knowledge for measuring them is described.

Index Terms: Behavior, Preferences

Available: (1) DSC

82. Driver, B. L., and Perry J. Brown
1975. A social-psychological definition of recreation demand, with implications for recreation resource planning. Appendix A In Assessing Demand for Outdoor Recreation. U. S. Department of the Interior, Bureau of Outdoor Recreation. 24 p.

Utilizing the results of other research, the authors present a social-psychological model of recreation demand and benefit, and explain the results to recreation practitioners. From this model, a behavioral approach to recreation demand is developed in which the social and psychological benefits of the recreation experience are identified. The authors argue for its adoption by both planners and resource managers, and discuss several advantages of its application.

Index Terms: Behavior, Planning

Available: (1) Bureau of Outdoor Recreation
(2) DSC

83. Hendee, John C., and Rabel J. Burge
1974. The substitutability concept: implications for recreation research and management. *Journal of Leisure Research* 6 (Spring): 157-162.

Substitutability is defined in this paper as the interchangeability of recreation activities in satisfying a participant's motives, needs, wishes, and desires. An illustration of this relatively new concept is presented, and its problems and opportunities are discussed.

Index Terms: Motivation, Perception

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

84. Hendee, John C., Richard P. Gale, and William R. Catton, Jr.
1971. A typology of outdoor recreation activity preferences.
Journal of Environmental Education 3(1):28-34.

A conceptual framework is developed to study recreation activities by classifying them according to stated preferences rather than differences in observed activities. Advantages and disadvantages of each are discussed. Preferences are compared with the age and education of respondents. Finds that activities preferred are related to decreasing physical abilities over aging, and the shifting of preferred activities over age can be predicted according to preferences in younger age. Different classes of activities are based upon education and, at major life stages, education can determine preferences.

Index Terms: Behavior, Characteristics, Preferences

Available: (1) DSC

85. Moeller, George H., and John H. Engelken
1972. What people look for in a fishing experience.
Journal of Wildlife Management 36(4):1253-1257.

Fishermen were interviewed to determine the relative importance of eight factors affecting their fishing experience. Environmental elements - water quality, natural beauty, and privacy - ranked the highest overall. "Number of fish" ranked sixth. Fishermen were then grouped according to factors such as age, education, etc., and motivational differences are discussed. Concludes that fishery management must incorporate fishermen desires and environmental management to provide a quality recreation experience.

Index Terms: Management, Motivation, Perception

Available: (1) DSC

86. Potter, Dale R., John C. Hendee, and Roger N. Clark
1973. Hunting satisfaction: game, guns, or nature?
Transactions, Thirty-eight North American Wildlife
and Natural Resources Conference 38:220-229.

Examines the types of satisfactions derived from a hunting experience, and proposes a multiple-satisfaction model of hunting. Eleven dimensions of hunting satisfaction are identified, the top three being nature, escapism, and companionship. Some satisfactions are generic to all types of hunting while others are more specific to particular kinds of hunting, such as satisfactions derived from big-game vs. water-fowl hunting. Important management implications are discussed.

Index Terms: Management, Motivation

Available: (1) Pacific Northwest Forest and Range Experiment Station
(2) DSC

87. Shafer, E. L.
1971. Surveys in recreation research. Proceedings of
the 1971 Foresters Conference, State of Pennsylvania,
Bureau of Forestry, 5 p.

An introduction to the use of survey research by the manager and planner. Discusses briefly some of the pertinent management problems and procedures associated with recreation surveys. Includes an outline of the seventeen steps in survey research and several aspects of recreation survey procedures that should be kept in mind when considering the use of a survey to answer management questions.

Index Terms: Behavior, Motivation, Perception, Questionnaires

Available: (1) DSC

- Clark, Roger N., John C. Hendee, and Frederick L. Campbell.
1971. Values, behavior, and conflict in modern camping culture. *Journal of Leisure Research* 3 (Summer):143-159.
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1969. Rural - urban differences reflected in outdoor recreation participation. *Journal of Leisure Research* 1(Autumn): 333-341.
- Hendee, John D., William R. Catton, Larry D. Marlow, and C. Brank Brockman.
1968. Wilderness users in the Pacific northwest--their characteristics, values, and management preferences. USDA Forest Service, Pacific Northwest Forest and Range Experiment Station Research Paper PNW-61. 92 p.
- Knopf, Richard C., B. L. Driver, and John R. Bassett
1973. Motivations for fishing. *Transactions, Thirty-Eighth North American Wildlife and Natural Resources Conference* 38:191-204.
- Peterson, George L.
1974. A comparison of the sentiments and perceptions of wilderness managers and canoeists in the Boundary Waters Canoe Area. *Journal of Leisure Research* 6 (Summer):194-206.
- Potter, Dale R., Kathryn M. Sharpe, John C. Hendee, and Roger N. Clark.
1972. Questionnaires for research: an annotated bibliography on design, construction, and use. USDA Forest Service Pacific Northwest Forest and Range Experiment Station Research Paper PNW-140. 80 p.
- Shelby, Bo
1975. Social-psychological effects of motorized travel in wild areas: the case of river trips in the Grand Canyon. Appendix 3 *In Progress Report III, River Contract Study*, by Joyce M. Nielsen and Bo Shelby. National Park Service, Grand Canyon, Arizona.



CULTURAL RESOURCES

The materials supplied in this section are intended to supplement the information contained in the forthcoming BLM Manual, Section 6400 series, entitled Cultural Resource Management. Copies of the numbered, abstracted publications in this section, as in any section of the Recreation Literature Access System, may be ordered by writing the Recreation Staff D-370, Denver Federal Center, Building 50, Denver, or calling (FTS) 234-5094.

88. Fowler, John M.
1976. Federal historic preservation law: National Historic Preservation Act, Executive Order 11593, and other recent developments in federal law. Wake Forest Law Review 12(1):31-74.

This article describes in a very readable fashion the development of contemporary federal historic preservation law, including the National Historic Preservation Act of 1966 and Executive Order 11593. Explains the strengths and weaknesses of all federal preservation law except the Archeological and Historic Preservation Act of 1974, and documents the judicial interpretation of the powers of the NHPA and E.O. 11593. Discusses the authority and duties of the Advisory Council on Historic Preservation and the importance of the National Register of Historic Places. A lengthy footnote/bibliography section is included.

Index Terms: Cultural Resource Legislation

Available: (1) DSC

89. Interagency Archeological Services Division
1976. Interagency archeological program. U. S. Department of the Interior, National Park Service, U.S. Government Printing Office, Washington, D. C. Folder No. 1976-211-308/135.

Describes the beginnings and present activities of the Interagency Archeological Program, including the legislation which pertains to it. Also explains the relationship of the IAP with other federal preservation programs. Should be used as an overview of the IAP.

Index Terms: Cultural Resource Management

Available: (1) BLM District Offices
(2) DSC

90. Interagency Archeological Services Division

1975. The national register. U. S. Department of the Interior, National Park Service, U.S. Government Printing Office, Washington, D. C. Folder No. 1974-211-308/20.

Explains what the National Register of Historic Places is, the criteria for evaluation of a potential National Register entry, and the various programs which operate under the National Register. Should be used as an overview. This publication contains an explanation of the National Register and should not be confused with the National Register of Historic Places, which contains a description of all National Register properties and is published annually in the Federal Register (see citations at end of this section).

Index Terms: Cultural Resource Analysis, Cultural Resource Management

Available: (1) DSC

91. King, Thomas F.

1975. Cultural resource law and the contract archeologist. Archeological Resource Management Service, New York Archeological Council, Buffalo. 25 p.

Although this was prepared for distribution to archeologists rather than public agencies, it provides a wealth of information on what is expected of contract archeologists. Explains the procedures used by the federal government for the identification, evaluation, and protection of cultural resources as prescribed in 36 CFR Part 800. Explains how these procedures can be used by archeologists when under contract for a federal project, and includes a sample memorandum of agreement. An insight into the "other side".

Index Terms: Cultural Resource Analysis, Cultural Resource Legislation

Available: (1) DSC

92. Office of Archeology and Historic Preservation

1975. How to complete national register forms. The National Register Program, Volume 2. U. S. Department of the Interior, National Park Service. 81 p.

Concerned with the actual completion of National Register forms, with information concerning special types of properties and examples of nominations. Includes criteria for evaluation, revisions of National Register Forms, and preservation legislation.

Index Terms: Cultural Resource Analysis

Available: (1) DSC

93. Rudy, Jack R.

1976. National environmental policy act and cultural resources. Symposium on Dynamics of Cultural Resource Management. Archeological Report No. 10, U.S.D.A. Forest Service Southwestern Region, Albuquerque. p. 38-43.

An excellent article for anyone concerned with cultural resources in environmental impact statements. Explains the NEPA requirements for the content of an EIS, and describes six steps which should be taken to fulfill the NEPA requirements for cultural resources.

Index Terms: Cultural Resource Analysis, Cultural Resource Legislation, Environmental Impact.

Available: (1) Forest Service Southwestern Region, Albuquerque, N.M.
(2) DSC

Advisory Council on Historic Preservation

1974. Procedures for the protection of historic and cultural resources. Code of Federal Regulations, Title 36, Part 800.

Costales, Roberto

1974. Preparation of archeological inputs to environmental reports and environmental impact statements. 1974 Cultural Resource Management Conference. Museum of Northern Arizona - Technical Series No. 14. p. 89-92.

Interagency Archeological Services Division

1970. The national historic landmarks program. U.S. Department of the Interior, National Park Service. U. S. Government Printing Office, Washington, D.C. No. 1970 - 0-373-545.

U. S. Department of the Interior, Bureau of Land Management

- Forthcoming: Cultural resource management. BLM Manual, Section 6400 series.

U. S. Department of the Interior, National Park Service

1974. Preparation of environmental statements: Guidelines for discussion of cultural resources, U.S. Government Printing Office, Washington, D.C. No. 874-863. 14 p.

U. S. Department of the Interior, National Park Service, National Register of Historic Places

1976. The national register of historic places. U.S. Government Printing Office, Washington, D.C. Fifth complete listing, not including the monthly additions which are published in the Federal Register.

INDEX SECTION

A

Aesthetics (see visual resource analysis)
Attitudes (see preferences)

B

Backcountry (see dispersed use) (also see wilderness)
Behavior...6, 55, 81, 82, 84, 87

C

Carrying capacity...1, 2, 3, 4, 5, 11, 12, 13, 14, 15, 16
Characteristics...6, 7, 11, 13, 15, 72, 84
Commercial services...18
Crowding (see carrying capacity)
Cultural resource analysis...80, 91, 92, 93
Cultural resource legislation...88, 91, 93
Cultural resource management...89, 90

D

Dispersed use...3, 22

E

Environmental education...42, 43, 45
Environmental impact...17, 70, 73, 93

G

Guides (see commercial services)

I

Interpretation...41, 42, 43, 44, 45, 46, 47, 78

L

Landscape management (see visual resource analysis)
Landscape visibility analysis...31, 33, 39

M

Management...1, 2, 3, 4, 5, 6, 8, 9, 12, 13, 18, 19, 49, 54, 55
58, 59, 74, 78, 85, 86
Motivation...4, 6, 13, 80, 83, 85, 86 87

N

Natural areas (see research natural areas) (also see wilderness)

O

Off-road vehicles...67, 68, 69, 70, 71, 72, 73

Operations and maintenance...4

Outfitter (see commercial services)

P

Perception...4, 13, 83, 85, 87

Permits...8, 10, 18, 68, 70

Planning...2, 5, 41, 54, 55, 56, 57, 58, 59, 60, 61, 65, 66, 82

Policy...9

Preferences...3, 6, 7, 13, 15, 72, 81, 84

Primitive areas (see wilderness)

Public involvement...56

Public relations (see interpretation)

Q

Questionnaires...87

R

Recreation use (see visitor use analysis)

Registration systems...24, 26

Research natural areas...48, 49, 50, 51, 52, 53

Remote sensing...64, 65

Resource inventory...48, 53, 62, 63, 64, 65, 66

Rivers...15, 16, 17, 18, 19

S

Scenery (see visual resource analysis)

Site design...2, 4

U

Undesirable behavior...74, 75, 76, 77, 78, 79

Use estimation (see visitor use analysis)

Use permits (see permits)

Use regulation...2, 4, 5, 18

User characteristics (see characteristics)

User behavior (see behavior)

V

Values (see preferences)

Visitor use analysis....8, 10, 14, 20, 21, 22, 23, 24, 25, 26

Visitor safety....69

Visual resource analysis....28, 29, 30, 34, 35

Visual resource protection....30, 32, 35, 36, 37, 38

W

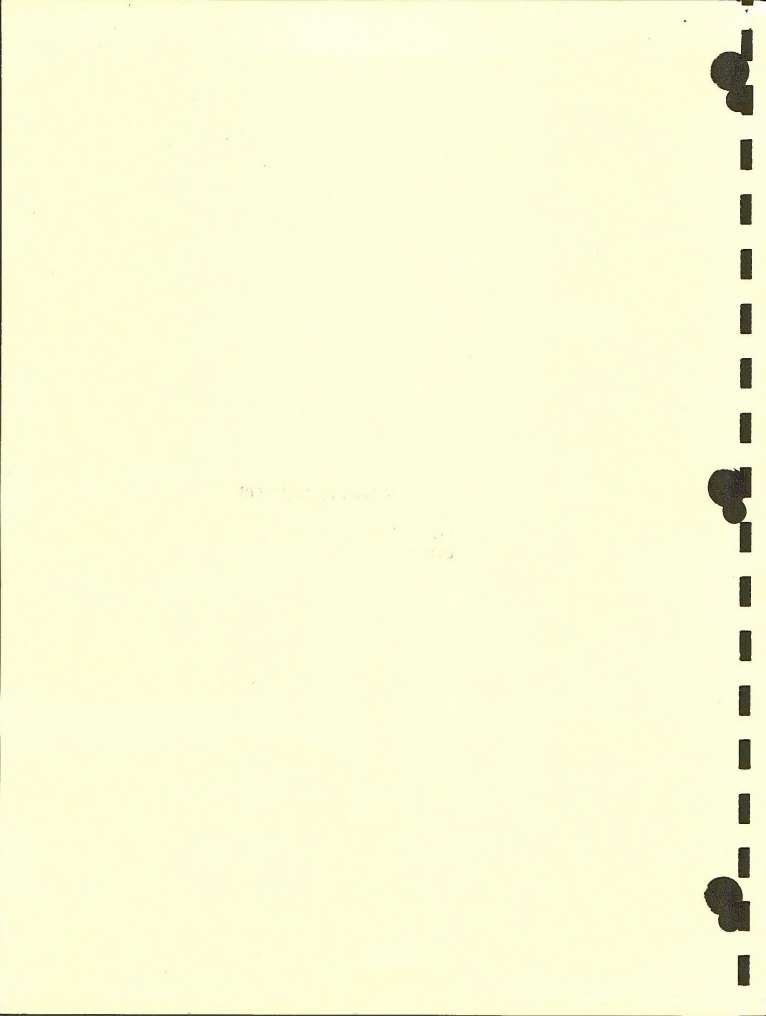
Whitewater (see rivers)

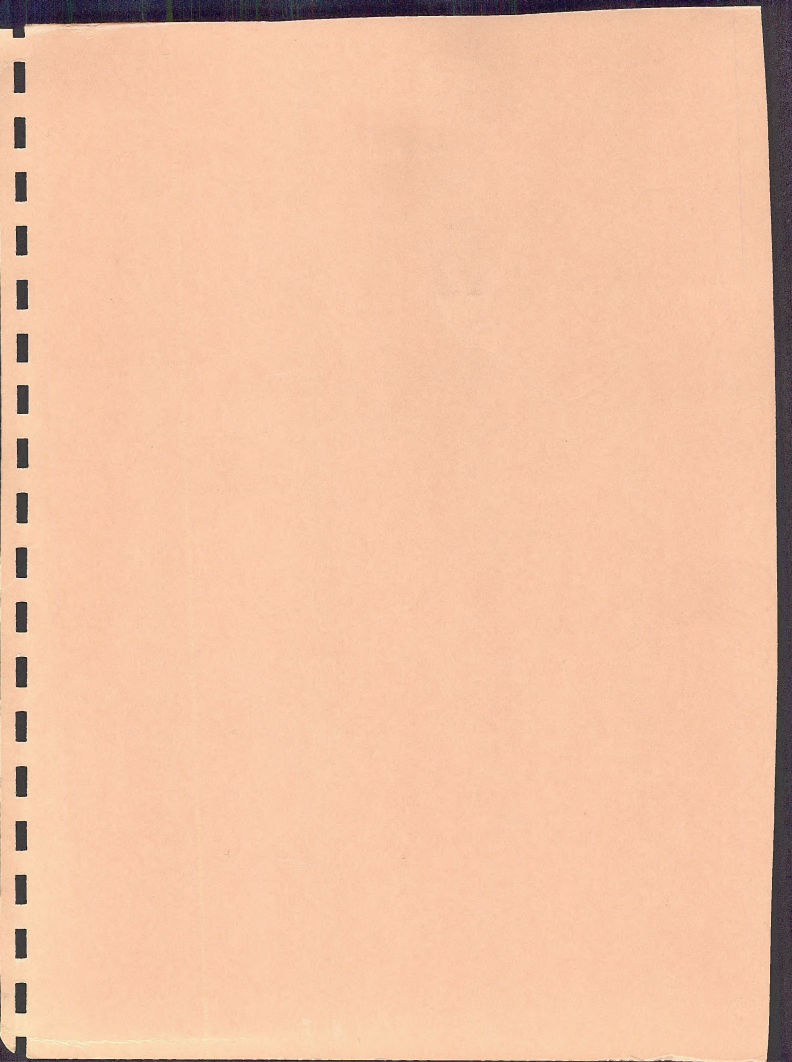
Wilderness....1, 6, 7, 8, 9, 10, 11, 12, 13, 14, 24, 52, 80

Z

Zoning (see use regulation)

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